The Role of Small Business in the Future U.S. Defense Industrial Base

National Small Business Conference San Diego, CA

DUSD (Industrial Policy)

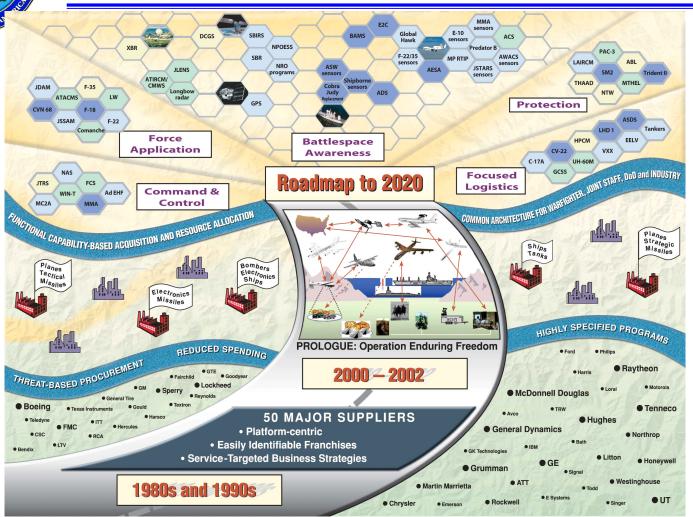




"The energy and vitality that we see in smaller niche segments in our society, in technology, tends not to deal with government because ... dealing with government is just a put-off. Who in the world wants to do it if he can avoid it? It's burdensome. It's ugly. It takes forever to get anything done. Delay helps the big companies, because they've got all the lawyers and all the lobbyists and all the people in Washington. Smaller companies don't have the time to do all of that. That means that government tends not to have the kind of interaction with the creativity and innovation that exists in our society."

 Secretary of Defense Donald H. Rumsfeld November 18, 2002

Roadmap to the Future



TED STATES OF



Joint Staff Functional Concepts

es of Ass					
Battlespace Awareness Global Hawk, MP-RTIP, NAS, Predator UAV (MQ-9), NPOESS, SBIRS-High, Cobra Judy Replacement, E-2 Advanced Hawkeye	Capabilities of commanders and all force elements to understand the environment in which they operate and the adversaries they face. Uses a variety of surveillance capabilities to gather information, a harmonized secure netcentric environment to manage this information, and a collection of capabilities to analyze, understand and predict.				
Command and Control GBS, AEHF, FBCB2, JTRS, SMART-T, WIN -T, MCS, NESP	Capabilities that exercise a commander's authority and direction over forces to accomplish a mission. Involves planning, directing, coordinating, and controlling forces and operations. Provides the means for a commander to recognize what is needed and ensure that appropriate actions are taken.				
Force Application AMRAAM, DDG 51, GMLRS, JDAM, JSOW, CVN 21, MM III, SSGN	Capabilities to engage adversaries with lethal and non-lethal methods across the entire spectrum of conflict. Includes all battlefield movement and dual-role offensive and defensive combat capabilities in land, sea, air, space, and information domains.				
Protection ATIRCM/CMWS, PAC -3, Chem Demil	Capabilities that defend forces and U.S. territory from harm. Includes missile defense and infrastructure protection and other capabilities to thwart force application by an adversary.				
Focused Logistics LPD-17, C-130, CH-47, H-1 Upgrades, GCSS, T-AKE, T-45 Training System, C-17, C-5 RERP, FMTV, V-22, MH 60	Capabilities to deploy, redeploy, and sustain forces anywhere in or above the world for sustained, in-theater operations. Includes traditional mobility functions of airlift, sealift, and spacelift as well as short-haul (intra-theater and battlefield) transportation. Also includes logistics C2, training, equipping, feeding, supplying, maintaining and medical capabilities.				



From program justification through budgeting and

acquisition, the

effects

Department should

organize its decision-

making processes to

optimize operational

The Department should

analyze the results of a

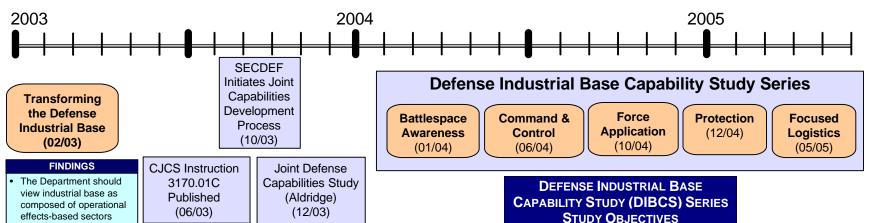
requirement in each of

critical technology

these sectors.

systematic assessment of

Defense Industrial Base Capability Study Series in Context



PURPOSE

- Established procedures to identify, assess, and prioritize joint military capability need
- Provided a construct for the Department's efforts to re-engineer corporate processes and unify focus on delivering warfighting capabilities
- Serves as the cornerstone in realigning the Department's planning and budgeting processes

stone in assessments on priority critical technologies to identify deficiencies.

Develop a systematic method to craft industrial base strategies to remedy industrial base deficiencies identified and encourage proactive, innovative management of the industrial base.

Develop a capabilities-based industrial

framework and analytical methodology as a

foundation for programmatic and investment

decision-making.

Identify technology critical to enabling the new

Joint Staff functional warfighter capabilities.

Establish a reference database of these key

critical industrial base capabilities mapped to

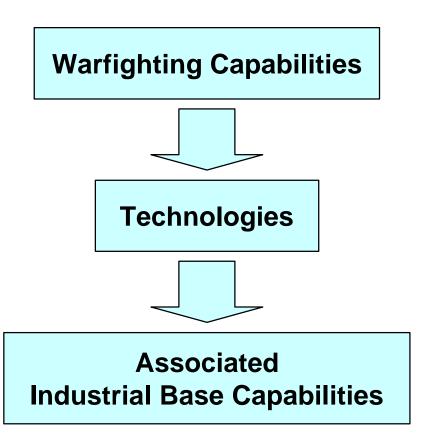
warfighting functional capabilities.

Conduct industrial base capability

Source: ODUSD(IP)



DIBCS Translation Process





DIBCS Report Schedule

DIBCS Report	Publication Date
Battlespace Awareness	January 2004
Command & Control	June 2004
Force Application	October 2004
Protection	December 2004
Focused Logistics	May 2005

7/19/04 Source: ODUSD(IP) 7



CONCEPT CAPABILITIES

Observe and Collect

Manage Knowledge

Integrate Battlespace

Awareness Network

Information

Personnel

Information World-Wide

Model, Simulate & Forecast

Command and Control of

Rapidly Infuse Technology

Analysis of Intelligence

Process

Translation

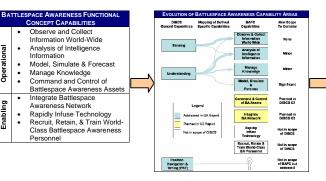
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The Defense Industrial Base Capability Study Series as a Lexicon: From Warfighting to Technology and Industrial Base Capabilities

Operational Capability Framework



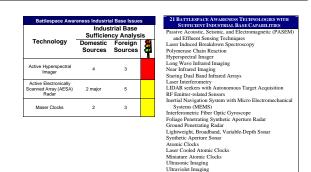


Appendix B

Critical Technologies for

Battlespace Awareness Organized by

BROAD INDUSTRIAL AREAS FOR



Technologies & Industrial Base Capabilities









Appendix C A Compendium of Representative Defense Technology Suppliers with Transformational Capabilities

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Broad Industrial Areas

Battlespace Awareness	 Acoustic Sensing Chemical, Biological, Radiological, and Nuclear Event Sensing Combination Sensing Environmental Sensing Electro-Optical Sensing Hyperspectral Sensing Information Technology Infrared Sensing Laser Sensors 	 Magnetic Sensing Microwave Sensing Other Imaging Radar Radio Frequency Sensing Sonar Tagging Timing and Geopositioning Devices
Command & Control	 Collaboration Management Communication Components Computers Data Management Decision Support Displays 	 Information Management Location and Identification Modeling and Simulation Power Generation and Storage Software Encryption and Tasking Unmanned Vehicle Control

7/19/04 Source: Booz Allen Hamilton 9



Industrial Base Issues

			trial Base ncy Analys	is		
	Technology	Domestic Sources Sources		8	Rationale	
Awareness	Active Hyperspectral Imager	4	3		U.S. capability trails potential adversaries' capabilities due to foreign technology advancements in civil applications.	
	Active Electronically Scanned Array (AESA) Radar	2 major	5		Number of major domestic suppliers of AESA radars is probably still sufficient. However, degree of U.S. leadership is threatened by significant overseas competition.	
Battlespace	Maser Clocks	2	3		Maser clocks provide better precision and reliability than cesium atomic clocks and are standard in foreign GPS-like systems. U.S. capability is at best equal, and small market demand limits supplier base.	
Control	Helmet Mounted Display	5	4		Traditionally used for pilot applications, use of HMDs is now expanding into land warfare and U.S. leadership may be insufficient given new applications and essentiality to future warfighting concepts.	
Command &	Swarming Control Tools	Many ¹	Many ¹		U.S. research efforts are even with foreign institutions, with many foreign developers performing research in this technology area essential for remote vehicle control.	
Comr	Optical (Laser) Intersatellite Links	2	3		Competition with European and Japanese developers has been growing. Market is still small and presently two suppliers are adequate.	

¹ Swarming Control Tools are still in R&D, not production.

Source: Booz Allen Hamilton and ODUSD(IP)



Crafting Defense Business Strategies by Functional Capability

Actor	Objective	Process
Emerging Defense Suppliers Global Defense Suppliers	Better access to U.S. Defense Industrial Base	 Map technologies by functional capabilities; overlay with U.S. functional capabilities. Assess which technology is/are gap fillers, innovate, or revolutionize existing capabilities. Develop business strategy targeting associated senior JCS/Department leadership, program managers, and companies.

7/19/04 Source: ODUSD(IP) 11



Backup



DIBCS Methodology: Battlespace Awareness Example

Identify U.S. Leadership Goals for Capabilities

Degree of Leadership Capability Be Way Ahead Characterize Detect and locate Observe & Collect Detect airborne EM conventional underground, man-Info World-Wide transmissions made structures explosions Integrate various Set the boundaries of Generate combatan Analysis of Gather and analyze sensor inputs to an adversary's Intelligence Info depict the EM population trends battlespace Display analysis Manage Manage operationally Recover signal from based on all source Knowledge significant information noise environment inputs Develop a model for Model, Simulate & predictive battlespace Forecast awareness

> Decompose capabilities and identify functions to determine enabling technologies

2

Determine Enabling Technologies for Be Ahead/Be Way Ahead Capabilities

Critical Technology/ Industry List (270)

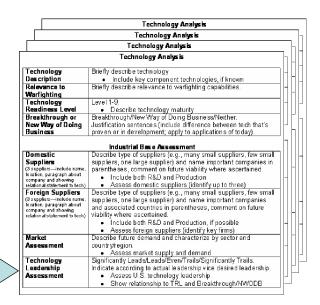
Long Wave Infrared Imaging
Active Hyperspectral Imager
Laser Interferometry
Active Electronically Scanned Array Radar
Maser Clocks
Ground Penetrating Radar
Lightweight, Broadband, Variable-Depth Sonar
Ultrasonic Imaging
Near Infrared Imaging
Miniature Atomic Clocks
Laser Induced Breakdown Spectroscopy

Polymerase Chain Reaction

Prioritize technologies to focus and scope assessments

3

Assess Industrial Base Capabilities for Each Critical Technology





Industrial Base Issues

	SZUTES OF B	Industrial Base Sufficiency Analysis					
	Technology	Domestic Foreign Sources		-	Rationale	Remedy	
Awareness	Active Hyperspectral Imager	4	3		U.S. capability trails potential adversaries' capabilities due to foreign technology advancements in civil applications.	More U.S. investment. Department should consider strong program to develop the chemical signature and surveillance capabilities.	
Battlespace Awar	Active Electronically Scanned Array (AESA) Radar	na dana ia mushahit, atili autikai anti Hausanan			Continued R&D investment by industry and the Department focused on performance improvements, better manufacturing techniques, and broader applications. Department should carefully manage future competitions and block teaming impediments.		
Battle	Maser Clocks	2	3		Maser clocks provide better precision and reliability than cesium atomic clocks and are standard in foreign GPS-like systems. U.S. capability is at best equal, and small market demand limits supplier base.	Department should invest in R&D and structure future systems to allow for competition among innovative timing technologies thus incentivizing industrial investment and attention.	
Control	Helmet Mounted Display	5	4		Traditionally used for pilot applications, use of HMDs is now expanding into land warfare and U.S. leadership may be insufficient given new applications and essentiality to future warfighting concepts.	Department should fund innovative non-aviation applications and structure acquisition strategies and leverage weapon system designs to promote competition and innovation among suppliers.	
Command &	Swarming Control Tools	Many ¹	Many ¹		U.S. research efforts are even with foreign institutions, with many foreign developers performing research in this technology area essential for remote vehicle control.	Department must appropriately control intellectual property rights so that they are available to multiple potential manufacturers and be ready to stage competitions to develop sufficient sources.	
Cor	Optical (Laser) Intersatellite Links	2	3		Competition with European and Japanese developers has been growing. Market is still small and presently two suppliers are adequate.	Department should require competition of components during design of optical intersatellite links to encourage multiple satellite communication suppliers and new industry participants.	

¹ Swarming Control Tools are still in R&D, not production.

Source: Booz Allen Hamilton and ODUSD(IP)



Functional Capabilities Applications in Defense Enterprise Strategies

Corporate Entity	Application	Utility
Government/Industry Program Managers	Decompose programs by functional capabilities/subsystems to assess applications for other platforms/ functions.	Facilitates cross-platform functional applications
Corporate Operating Groups and Military Services	Map operations by functional capabilities to better address customer needs and synergize corporate portfolio.	Provides benefits of functional view at corporate operating level and "common operating picture" across enterprise.
Corporations, the Defense Industrial Base, Defense Establishments, and supranational organizations	Assess business strategies based on consolidated view of existing capabilities relative to required capabilities.	Ensures common language among senior decision makers throughout the defense enterprise, better anticipatory capabilities, and more seamless access to markets/ technology opportunities.

7/19/04 Source: ODUSD(IP) 15